REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

To overcome the obviousness-type double patenting rejections, a terminal disclaimer is submitted herewith, to expedite issuance. However, it is submitted that the present claims are patentably distinct from all claims of the cited co-pending applications.

To overcome the objection to the continuation data, the specification is amended and a corrected double-column sheet is provided.

Claims 4-6, 8, 10 and 11 are hereby amended to clarify the claimed subject matter. For the convenience of the Office, marked up versions of the amended claims are attached. Support for the amended language is found in Fig. 5 and the discussion at original patent col. 8, line 62 *et seq*.

The Original Letters Patent No. 5,745,182 was surrendered on April 6, 2001.

A draft Supplemental Reissue Declaration is attached for approval prior to execution. It is noted that MPEP 1414 requires merely that the reissue declaration state at least one error being relied upon as the basis for reissue. The noted error may be the same for both the parent and divisional reissue.

It is noted that both the Statement under 37 CFR 3.73(b) and the Assent of Assignee were filed and accepted in parent reissue application no. 09/559,627, without objection to absence of a date. It is hereby noted that these documents were signed during the period of April 18-26, 2000. Copies thereof were filed in the present application. If new signed and dated documents are required, they will be submitted subsequently.

To expedite issuance, an executed Reissue Declaration, a re-executed Statement under 37 CFR 3.73(b) and a re-executed Assent of Assignee will be filed as soon as possible.

The Applicants respectfully traverse the rejection of claims 4-11 under 35 USC 102(a) as anticipated by Yutake (Field-time adjusted MC for frame-based coding (2)."

In the present claimed invention, the motion compensation for an input image is determined on the basis of pixel values calculated from a reference image R1 and a motion vector MV1 between the input image and the reference image R1, and pixel values calculated from a reference image R2 and a motion vector MV2 between the input image and the reference image R2. Each of the input image, the reference image R1 and the reference image R2 has a sampling time which is different from one another.

In the cited Yutake document, the motion compensation for an input image f2 is determined on the basis of pixel values

calculated from a reference image f0 and a motion vector MVfrm between the input image and the reference image f0, and pixel values calculated from a reference image f1 and a motion vector MVfld between the *reference* image f0 and the *reference* image f1. Further, the motion compensation for an input image f3 is determined on the basis of pixel values calculated from the reference image f1 and the motion vector MVfrm between the input image f3 and the reference image f1, and pixel values calculated from the reference image f0 and the motion vector MVfld between the *reference* image f0 and the *reference* image f1.

In Yutake, the motion compensation for two input images f2 and f3 is separately determined on the basis of two reference images f0 and f1. The motion vector for two input images f2 and f3 has the same magnitude of MVfrm. This is because the motion compensation is determined on the basis of the motion vector MVfrm having the same magnitude as that of the motion vector between the input images f2 and f3 and the reference images f0 and f1 (the reference image f0 relative to the input image f2 and the reference image f1 relative to the input image f3 corresponding to the reference image of the same polarity) having the same polarity as that of the input images f2 and f3.

In summary, the present claimed invention is entirely different from Yutake with respect to the motion vector which is

to be employed in the determination of motion compensation. That is, the present claimed invention is based on two motion vectors each of which is between one input image and two respective reference images R1 and R2, whereas Yutake is based on the motion vector MVfrm between the input image and one reference image (f0 or f1) which corresponds to the motion vector MV1 of the present claimed invention, and the motion vector MVfld *between two reference images* f0 and f1. The present claimed invention differs from Yutake in that Yutake uses the motion vector Mvfld between reference images while the present claimed invention uses the motion vector MV2 between the input image and a reference image. Accordingly, it is apparent that the present claimed invention is fundamentally different in method steps and concept from Yutake.

Thus, it is submitted that the rejection based on Yutake is unwarranted and should be withdrawn.

In light of the foregoing, a Notice of Allowance is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below, in order to expedite consideration and allowance of this application.

Respectfully submitted,

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Marked Up Version of the Claims

4. (Currently Amended) A method of determining motion compensation for an input image, said method comprising the steps of:

(a) providing a first motion vector MV1 between the input image sampled at a third time point and a reference image part r1 of one reference image R1 ~~having a plurality of reference image parts~~ sampled at a first time point;

(b) calculating a second motion vector MV2 between the input image sampled at said third time point and a reference image part r2 of another reference image R2 sampled at a second time point ~~having a plurality of reference image parts~~ from said first motion vector MV1, wherein said first, second and third time points are different in time;

(c) calculating pixel values of said reference image parts r1 and r2 from peripheral pixels at positions corresponding to said first and second motion vectors MV1 and MV2, wherein said reference images R1 and R2 are such that a motion vector MV3 between said reference image parts r1 and r2 has a mathematical relationship with said first and second motion vectors MV1 and MV2 in which said motion vector MV3 is parallel to and different in value from each of said first and second motion vectors MV1

and MV2; and

(d) calculating said motion compensation for said input image from said pixel values calculated in step (c).

5. (Currently Amended) A method for determining a motion-compensated image, said method comprising the steps of:

(a) providing a first motion vector MV1 between the motion-compensated image <u>sampled at a third time point</u> and a reference image part r1 of one reference image R1 ~~having a plurality of parts~~ <u>sampled at a first time point</u> ;

(b) calculating a second motion vector MV2 between the motion-compensated image <u>sampled at said third time point</u> and a reference image part r2 of another reference image R2 ~~having a plurality of reference image parts~~ <u>sampled at a second time point</u> from said first motion vector MV1<u>, wherein said first, second and third time points are different in time</u>;

(c) calculating pixel values of said reference image parts r1 and r2 from peripheral pixels at positions corresponding to said first and second motion vectors MV1 and MV2, wherein said reference images R1 and R2 are such that a motion vector MV3 between said reference image parts r1 and r2 has a mathematical relationship with said first and second motion vectors MV1 and MV2 in which said motion vector MV3 is parallel to and different

in value from each of said first and second motion vectors MV1 and MV2; and

(d) calculating motion-compensated pixel values from said pixel values calculated in step (c) to determine said motion-compensated image.

6. (Currently Amended) An apparatus for determining motion compensation for an input image, said apparatus comprising:

(a) means for providing a first motion vector MV1 between the input image <u>sampled at a third time point</u> and a reference image part r1 of one reference image R1 ~~having a plurality of reference image parts~~ <u>sampled at a first time point</u> ;

(b) means for calculating a second motion vector MV2 between the input image <u>sampled at said third time point</u> and a reference image part r2 of another reference image R2 ~~having a plurality of reference image parts~~ <u>sampled at a second time point</u> from said first motion vector MV1<u>, wherein said first, second and third time points are different in time</u>;

(c) means for calculating pixel values of said reference image parts r1 and r2 from peripheral pixels at positions corresponding to said first and second motion vectors MV1 and MV2, wherein said reference images R1 and R2 are such that a motion vector MV3 between said reference image parts r1 and r2

has a mathematical relationship with said first and second motion vectors MV1 and MV2 in which said motion vector MV3 is parallel to and different in value from each of said first and second motion vectors MV1 and MV2; and

(d) means for calculating motion-compensated pixel values of said input image from said pixel values of said reference image parts r1 and r2 to determine said motion compensation.

7. (Previously Presented) An apparatus in accordance with claim 6, wherein said reference images R1 and R2 are previous to said input image in a time sequence.

8. (Currently Amended) An apparatus for determining a motion-compensated image from a reference image having a plurality of parts and a motion vector of the reference image, said apparatus comprising:

(a) means for providing a first motion vector MV1 between said motion-compensated image <u>sampled at a third time point</u> and a reference image part r1 of one reference image R1 ~~having a plurality of reference image parts~~ <u>sampled at a first time point</u>;

(b) means for calculating a second motion vector MV2 between said motion-compensated image <u>sampled at said third time point</u> and a reference image part r2 of another reference image R2

~~having a plurality of reference image parts~~ sampled at a second time point from said first motion vector ~~MV2~~ MV1, wherein said first, second and third time points are different in time;

(c) means for calculating pixel values of said reference image parts r1 and r2 from peripheral pixels at positions corresponding to said first and second motion vectors MV1 and MV2, wherein said reference images R1 and R2 are such that a motion vector MV3 between said reference image parts r1 and r2 has a mathematical relationship with said first and second motion vectors MV1 and MV2 in which said motion vector MV3 is parallel to and different in value from each of said first and second motion vectors MV1 and MV2; and

(d) means for calculating motion-compensated pixel values from said pixel values of said reference image parts r1 and r2 to determine said motion-compensated image.

9. (Previously Presented) An apparatus in accordance with claim 8, wherein said reference images R1 and R2 are previous to said motion-compensated image in a time sequence.

10. (Currently Amended) A method in accordance with claim 4, wherein said parts ~~R1~~ r1 and ~~R2~~ r2 are previous to said input image in a time sequence.

11. (Currently Amended) A method in accordance with claim 5, wherein said parts ~~R1~~ r1 and ~~R2~~ r2 are previous to said motion-compensated image in a time sequence.